

Reedley College

Proposed Course Modification

Course # / Title AERO 1/Aviation Maintenance Technology

CHECK OFF SHEET

PRELIMINARY STEPS. Do before completing Course Modification Form.

(EACH BOX SHOULD BE CHECKED AS COMPLETED BEFORE SUBMISSION.)

1. Communicate with the Curriculum Chair regarding intent to modify an existing course outline (recommended, not required).
2. List term for implementation of modifications:
 Fall 2010 Spring _____ Summer _____
3. Check one:
Do not complete Fresno City College course alignment page if:
 x No similar course or program at FCC.
_____ Course currently in common with FCC course or accepted in lieu of and changes will not affect status.

Complete Fresno City College course alignment page if:

- _____ Course currently in common with FCC course or accepted in lieu of. Changes may affect status. Consult with counterparts at FCC and complete alignment page
- _____ Course not in common or accepted in lieu of but may be with proposed changes consult with FCC counterparts

4. Changes sought in the following:

CSU General Education Code	Yes	_____	No	<u> x </u>
Transfer Baccalaureate List	Yes	_____	No	<u> x </u>

If yes to either, schedule an appointment with the Articulation Officer

5. Changes sought in number of repeats for credit:

_____ Yes
 x No

If yes, secure a **Course Repetition** form from the Curriculum Office.

PROPOSED COURSE MODIFICATION FORM

- Appropriate sections of Course Outline of Record completed.

FINAL steps (Do after completing Course Outline of Record)

1. Signature Form. Secure signatures of the Department Chair and the Associate Dean before submitting the completed course proposal to the Curriculum Office.
2. Program Description. Course modification will change an existing program which is or will be described in the college catalogue.

_____ Yes x No

If yes, complete **Program Description Form** before submitting modification.

3. Final Check. All items above have been completed and checked off before modification is submitted.

**Reedley College
PROPOSED COURSE MODIFICATION**

All changes and modifications in the official course outline must come to the Curriculum Committee. Though minor changes may seem obvious, even these need to come to committee for information and to update the official curriculum. Changes in programs or in several department offerings should be submitted together if possible so that the whole picture is clear.

OUTLINE. Please fill in current existing course number, title, and units for course to be modified.

Department Industrial Technology Course No. AERO 1
 Course Title Aviation Maintenance Technology Units 17.5
 Effective Date 08/01/2010

**A. PROPOSED CHANGES.
(Indicate below all proposed changes to be made in the course outline.)**

I. Cover Page

- | | |
|--|---|
| <p><u> </u> 1. Course ID</p> <p><u> </u> 2. Course Title</p> <p><u> </u> 3. Units</p> <p><u> </u> 4. Lecture/Lab Hours</p> <p><u> </u> 5. Grading Basis</p> <p><u> x </u> 6. Entrance Skills: Basic Skills Prerequisites/Advisories</p> <p><u> </u> 7. Subject Prerequisites/Corequisites/Advisories</p> | <p><u> </u> 8. Classification (Degree applicable, Non-degree applicable, or Pre-collegiate Basic skills)</p> <p><u> </u> 9. General Education Pattern, Graduation Requirement, and Major Category</p> <p><u> </u> 10. General Education Pattern/Baccalaureate (CSU)</p> <p><u> </u> 11. Repeatability</p> <p><u> x </u> 12. Catalog Description</p> |
|--|---|

Other pages

- | | |
|--|--|
| <p><u> x </u> II. Course Outcomes</p> <p><u> x </u> III. Course Objectives</p> <p><u> x </u> IV. Course Content Outline</p> <p><u> x </u> V. Approved Readings</p> | <p><u> x </u> VI. Methods of Grading</p> <p><u> </u> VII. Levels of Educational Materials</p> <p>Additional Pages (optional depending on course)</p> <p><u> </u> Request for Repeatability/Limitation on Enrollment</p> |
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B. DESCRIPTION OF CHANGES AND MODIFICATIONS.

ITEM NO.	CHANGED FROM	CHANGED TO	REASON
6	Basic Skills Advisories:	Basic Skills Advisories: Eligibility for English 125, English 126, and Math 101	Students need these basic skills to succeed in the course
12..	Skills and knowledge appropriate to FAA Regulation Part 147 to include: Basic Electricity, Aircraft Drawings, Weight and Balance Fluid Lines and Fittings, Materials and Processes, Ground Operation and Servicing, Cleaning and Corrosion Control, Wood Structures, Aircraft Covering, Aircraft Finishes, Math, Maintenance Forms and Records, Basic Physics, Maintenance Publications, Mechanic Privileges and Limitations, Welding, and Human Factors. Computer subjects include terminology, storage devices, word processing, and computer based training applications.	Aero 1 meets the FAA General requirements including: Basic Electricity, Aircraft Drawings, Weight and Balance, Fluid Lines and Fittings, Materials and Processes, Ground Operation and Servicing, Cleaning and Corrosion Control, Wood Structures, Aircraft Covering, Aircraft Finishes, Math, Maintenance Forms and Records, Basic Physics, Maintenance Publications, Mechanic Privileges and Limitations, Welding, and Human Factors. Computer subjects include terminology, storage devices, word processing, and computer based training applications. . Successful completion of Aero 1, 2, 3 and 4 qualifies student to take the licensing exams required for Airframe and Powerplant certification.	Provide clarification to readers
II.	A. Meet the Federal Aviation Administration requirements for the "General" subjects as	A. Meet Federal Aviation Administration requirements for the "General" subjects as	Clarification of outcome "A" and "C"

	<p>specified in the Approved Aviation Maintenance Technician School.</p> <p>B. Adhere to ethical and legal maintenance standards as prescribed in the Federal Aviation Administration, Federal Aviation Regulations.</p> <p>C. Given acceptable manufacturers documentation, complete assigned inspections, modifications, repairs, calculations, and/or troubleshooting procedures.</p> <p>D. Develop acceptable documentation for return to service certification of aircraft and/or related component parts.</p> <p>E. Work successfully in a team atmosphere, alternately assuming the roles of leader and of team player.</p> <p>F. Apply safety procedures in a shop environment and follow hazardous material handling procedures.</p> <p>G. Become familiar with the general operating procedures of a personal computer and its standard peripheral devices.</p>	<p>specified in the Approved Aviation Maintenance Technician School Agreement.</p> <p>B. Recognize implication of ethical and legal maintenance standards as prescribed in the Federal Aviation Administration, Federal Aviation Regulations.</p> <p>C. Complete assigned inspections, modifications, repairs, calculations, and/or troubleshooting procedures, while determining if provided documentation is valid.</p> <p>D. Develop acceptable documentation for return to service certification of aircraft and/or related component parts.</p> <p>E. Work successfully in a team atmosphere, alternately assuming the roles of leader and of team player.</p> <p>F. Apply safety procedures in a shop environment and follow hazardous material handling procedures.</p> <p>G. Become familiar with the general operating procedures of a personal computer and its standard peripheral devices.</p>	
III.	<ol style="list-style-type: none"> 1. (3) Determine the relationship of voltage, current, and resistance in electrical circuits 2. (2) Calculate and measure electrical power 3. (3) Measure voltage, current, resistance, and continuity 4. (3) Read and interpret electrical circuit diagrams 5. (3) Inspect and service batteries 6. (2) Calculate and measure capacitance and inductance 7. (2) Use drawings symbols and schematic diagrams 8. (3) Draw sketches of repairs and alterations 9. (3) Use blueprint information 10. (3) Use graphs and charts 11. (2) Weigh aircraft 12. (3) Perform complete weight and balance checks and properly record data 13. (3) Fabricate and install rigid and flexible fluid 	<ol style="list-style-type: none"> 1. Determine the relationship of voltage, current, and resistance in electrical circuits (Level 3) 2. Calculate and measure electrical power (Level 2) 3. Measure voltage, current, resistance, and continuity (Level 3) 4. Read and interpret electrical circuit diagrams (Level 3) 5. Inspect and service batteries (Level 3) 6. Calculate and measure capacitance and inductance (Level 2) 7. Use drawings symbols and schematic diagrams (Level 2) 8. Draw sketches of repairs and alterations (Level 3) 9. Use blueprint information (Level 3) 10. Use graphs and charts (Level 3) 11. Weigh aircraft (Level 2) 12. Perform complete weight and balance checks and properly record data (Level 3) 13. Fabricate and install rigid 	Clarification of FAA levels in objectives

	<p>lines and fittings.</p> <p>14. (3) Identify and select aircraft hardware and materials</p> <p>15. (1) Identify and select appropriate nondestructive testing methods</p> <p>16 (2) Perform penetrant, chemical etching, and magnetic particle inspections</p> <p>17. (3) Perform precision measurements</p> <p>18. (3) Inspect and check welds</p> <p>19. (2) Start, ground operate, move, service, and secure aircraft and identify typical ground operation hazards</p> <p>20. (2) Identify and select fuel</p> <p>21. (3) Identify and select cleaning materials</p> <p>22. (3) Inspect, identify, remove, and treat aircraft corrosion and perform aircraft cleaning</p> <p>23. (1) Service and repair wood structures</p> <p>24. (1) Identify wood defects</p> <p>25. (1) Inspect wood structures</p> <p>26. (1) Inspect, test, and repair fabric</p> <p>27. (1) Select and apply fabric and fiberglass covering materials</p> <p>28 (1) Apply trim, letters, and touch-up paint</p> <p>29. (2) Identify and select aircraft finishing materials</p> <p>30. (2) Apply finishing materials</p> <p>31. (2) Inspect finishes and identify defects</p> <p>32. (3) Determine areas and volumes of various geometrical shapes</p> <p>33. (3) Solve ratio, proportion and percentage problems</p> <p>34. (3) Perform algebraic operations involving addition, subtraction, multiplication and division of positive and negative numbers</p> <p>35. (3) Extract roots and raise numbers to a given power</p> <p>36. (3) Demonstrate ability to read, comprehend and</p>	<p>and flexible fluid lines and fittings. (Level 3)</p> <p>14. Identify and select aircraft hardware and materials (Level 3)</p> <p>15. Identify and select appropriate nondestructive testing methods</p> <p>16 Perform penetrant, chemical etching, and magnetic particle inspections (Level 2)</p> <p>17. Perform precision measurements (Level 3)</p> <p>18. Inspect and check welds (Level 3)</p> <p>19. Start, ground operate, move, service, and secure aircraft and identify typical ground operation hazards (Level 2)</p> <p>20. Identify and select fuel (Level 2)</p> <p>21. Identify and select cleaning materials (Level 3)</p> <p>22. Inspect, identify, remove, and treat aircraft corrosion and perform aircraft cleaning (Level 3)</p> <p>23. Service and repair wood structures (Level 1)</p> <p>24. Identify wood defects (Level 1)</p> <p>25. Inspect wood structures (Level 1)</p> <p>26. Inspect, test, and repair fabric (Level 1)</p> <p>27. Select and apply fabric and fiberglass covering materials (Level 1)</p> <p>28 Apply trim, letters, and touch-up paint (Level 1)</p> <p>29. Identify and select aircraft finishing materials (Level 2)</p> <p>30. Apply finishing materials (Level 2)</p> <p>31. Inspect finishes and identify defects (Level 2)</p> <p>32. Determine areas and volumes of various geometrical shapes (Level 3)</p> <p>33. Solve ratio, proportion and percentage problems (Level 3)</p> <p>34. Perform algebraic operations involving addition, subtraction, multiplication and division of positive and negative numbers (Level 3)</p> <p>35. Extract roots and raise numbers to a given power (Level 3)</p>	
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	<p>apply information contained in FAA and manufacturers aircraft maintenance specifications, data sheets, manuals and publications, related Federal Aviation Regulations, airworthiness directives, and advisory material</p> <p>37. (3) Read, understand, and relate technical information</p> <p>38. (3) Write descriptions of aircraft condition and work performed including aircraft discrepancies and corrective actions using typical aircraft maintenance records</p> <p>39. (3) Complete required maintenance forms, records, and inspection reports</p> <p>40. (3) Exercise mechanic privileges with the limitations prescribed by Part 65 of the Federal Aviation Regulations.</p> <p>41. (2) Use and understand the principles of simple machines; sound, fluid, dynamics, basic aerodynamics, aircraft structures and theory of flight</p> <p>42. (1) Weld magnesium and titanium</p> <p>43. (1) Solder stainless steel</p> <p>44. (2) Solder, braze, gas-weld, and arc-weld steel</p> <p>45. (1) Weld aluminum and stainless steel</p> <p>46. (1) Fabricate tubular structures</p> <p>47. (1) Understand the role human factors plays in aviation maintenance safety</p> <p>48. (2) Operate a windows-based computer for CBT training Activate a personal computer and load/save Lab Volt data files and ATP (Aircraft Technical Publishers) type certificate data files.</p> <p>50. Access and use TDATA software to research and record aircraft airworthiness directives for aircraft.</p> <p>51. Access the internet at</p>	<p>36. Demonstrate ability to read, comprehend and apply information contained in FAA and manufacturers aircraft maintenance specifications, data sheets, manuals and publications, related Federal Aviation Regulations, airworthiness directives, and advisory material (Level 3)</p> <p>37. Read, understand, and relate technical information (Level 3)</p> <p>38. Write descriptions of aircraft condition and work performed including aircraft discrepancies and corrective actions using typical aircraft maintenance records (Level 3)</p> <p>39. Complete required maintenance forms, records, and inspection reports (Level 3)</p> <p>40. Exercise mechanic privileges with the limitations prescribed by Part 65 of the Federal Aviation Regulations. (Level 3)</p> <p>41. Use and understand the principles of simple machines; sound, fluid, dynamics, basic aerodynamics, aircraft structures and theory of flight (Level 2)</p> <p>42. Weld magnesium and titanium (Level 1)</p> <p>43. Solder stainless steel (Level 1)</p> <p>44. Solder, braze, gas-weld, and arc-weld steel (Level 2)</p> <p>45. Weld aluminum and stainless steel (Level 1)</p> <p>46. Fabricate tubular structures (Level 1)</p> <p>47. Understand the role human factors plays in aviation maintenance safety (Level 1)</p> <p>48. Operate a windows-based computer for CBT training (Level 2)</p> <p>49. Activate a personal computer and load/save Lab Volt data files and ATP (Aircraft Technical Publishers) type certificate data files.</p>	
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	<p>FAA.GOV and other sources to research aircraft airworthiness directives and to look up other pertinent aircraft information.</p> <p>52. Use email messaging to request information from aircraft and aircraft parts vendors for product information.</p>	<p>50. Access and use TDATA software to research and record aircraft airworthiness directives for aircraft.</p> <p>51. Access the internet at FAA.GOV and other sources to research aircraft airworthiness directives and to look up other pertinent aircraft information.</p> <p>52. Use email messaging to request information from aircraft and aircraft parts vendors for product information.</p>	
<p>IV.</p>	<p>A. Basic Electricity B. Aircraft Drawings C. Weight and Balance D. Fluid, Lines, and Fittings E. Materials and Processes F. Ground Operation and Servicing G. Cleaning and Corrosion Control H. Wood Structures I. Aircraft Covering J. Aircraft Finishes K. Math L. Maintenance forms and Records M. Basic Physics N. Maintenance Publications O. Mechanic Privileges and Limitations P. Welding Q. Computer Essentials R. Human Factors</p>	<p><u>Lecture:</u> A. Basic Electricity B. Aircraft Drawings C. Weight and Balance D. Fluid, Lines, and Fittings E. Materials and Processes F. Ground Operation and Servicing G. Cleaning and Corrosion Control H. Wood Structures I. Aircraft Covering J. Aircraft Finishes K. Math L. Maintenance forms and Records M. Basic Physics N. Maintenance Publications O. Mechanic Privileges and Limitations P. Welding Q. Computer Essentials R. Human Factors</p> <p><u>Lab will give students the opportunity to apply concepts to practical applications</u> A. Basic Electricity B. Aircraft Drawings C. Weight and Balance D. Fluid, Lines, and Fittings E. Materials and Processes F. Ground Operation and Servicing G. Cleaning and Corrosion Control H. Wood Structures I. Aircraft Covering J. Aircraft Finishes K. Math L. Maintenance forms and Records M. Basic Physics N. Maintenance Publications O. Mechanic Privileges and Limitations P. Welding Q. Computer Essentials</p>	<p>Addition of Lab content outline</p>

		R. Human Factors	
V.	<p>A. Airframe and Powerplant Technician General Text Book, Jeppesen, 2004</p> <p>B. Airframe and Powerplant Technician Airframe Textbook, Jeppesen, 2003</p> <p>C. Airframe and Powerplant Technician Powerplant Textbook, Jeppesen, 2004</p> <p>D. Aircraft Gas Turbine Powerplants, Jeppesen, 1977</p> <p>E. Aircraft Inspection and Repair (AC-43.13-1B &2A, FAA, supplied by Jeppesen, 1998</p> <p>F. Federal Aviation Regulations, Aviation Maintenance Technician, Jeppesen, 2003</p> <p>G. Aviation Mechanic Handbook, Crane, 1992</p> <p>H. Airframe and Powerplant Mechanic Powerplant Handbook (AC-65-12A), FAA, 1996</p> <p>I. Dictionary of Aeronautical Terms, Crane, 1991</p> <p>J. Computer-Based-Training hardware and software</p> <p>K. Aircraft and aircraft mock-up components</p> <p>L. Microfiche Library, ATP, 2006</p> <p>M. CD library, various</p> <p>N. Hard-copy Service Manuals, Maintenance Manuals, Parts Manuals; various</p>	<p>A. Federal Aviation Regulations, Aviation Maintenance Technician, Jeppesen, 2010, ISBN# 0-88487-337-4</p> <p>B. Airframe and Powerplant Technician General Text Book, Jeppesen, 2009, or equivalent</p> <p>C. Airframe and Powerplant Technician Airframe Textbook, Jeppesen, 2009, or equivalent</p> <p>D. Airframe and Powerplant Technician Powerplant Textbook, Jeppesen, 2009, or equivalent</p> <p>E. Aircraft Inspection and Repair (AC-43.13-1B &2B,) FAA, supplied by Jeppesen, 2008, or equivalent</p> <p>F. Dictionary of Aeronautical Terms, Crane, 2008, or equivalent</p> <p>G. Aviation Mechanic Handbook, Crane, 2006, or equivalent</p> <p>H. Aircraft Gas Turbine Powerplants, Jeppesen, 2002, or equivalent</p> <p>I. Computer-Based-Training hardware and software</p> <p>J. Aircraft and aircraft mock-up components</p> <p>K. Microfiche Library, ATP, 2008</p> <p>L. CD library, various</p> <p>M. Hard-copy Service Manuals, Maintenance Manuals, Parts Manuals; various</p>	Update of text publication dates
VI.	<p>A. Writing</p> <ol style="list-style-type: none"> 1. Technical reports. 2. Complete aircraft discrepancy reports and maintenance forms and records. 3. Write discrepancy reports and maintenance records <p>B. Problem Solving Exam 2—Basic Electricity <i>Please answer the questions below on the answer sheet provided. Turn in the question sheet and the answer sheet at the end of the exam.</i></p> <ol style="list-style-type: none"> 1. The total resistance of nine 180 ohm 	<p>A. Writing <i>Required assignments may include but are not limited to the following:</i> Discrepancy reports Laboratory reports Log Book entries</p> <p>Sample student prompt; Complete aircraft discrepancy reports and maintenance forms and records.</p> <p>B. Problem Solving <i>Required assignments may include, but are not limited to the following:</i></p>	Simplification of methods to measure student achievement

	<p>resistors in parallel is what.</p> <p>2. What is the total wattage of five 10 watt lights connected in parallel to a 24 volt source.</p> <p>3. One ampere is how many milliamperes.</p> <p>4. .002 KV is equal to how many volts.</p> <p>5. Potentiometers have how many electrical connections.</p> <p>6. Rheostats have how many electrical connections.</p> <p>7. The correct way to connect a test voltmeter in a circuit is in <i>series or parallel</i> with the unit? (Select the correct response).</p> <p>8. A 14 ohm resistor is to be installed in a series circuit carrying .05 ampere. How much power will the resistor be required to dissipate?</p> <p>9. What is the operating resistance of a 30 watt light bulb designed for a 28 volt system?</p> <p>10. What would an ohm meter read if it was used to check a light bulb with a broken filament?</p> <p>11. Write a formula that describes the relationship between total voltage drop and individual voltages in a series circuit.</p> <p>12. Write a formula that describes the relationship between total current flow and individual current flows in a series circuit.</p> <p>13. Write a formula that describes the relationship between total resistance and individual resistors in a series circuit.</p> <p>14. Write a formula that describes the relationship between total voltage drop and individual voltages in</p>	<p>Quizzes Lab reports Lab projects</p> <p>Sample student prompt; Trouble shoot failure in electrical system List procedures to repair to operating condition</p> <p><i>C. Skill demonstrations</i> Required assignments may include, but are not limited to the following: Lab project Research project Exam</p> <p>Sample Student Prompt; Weight aircraft and compute new empty weight and center of gravity</p>	
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- a **parallel** circuit.
15. Write a formula that describes the relationship between total current flow and individual current flows in a **parallel** circuit.
16. A circuit has 28 volts applied to a load consisting of a 10 ohm resistor in series with a 20 ohm resistor. What is the voltage drop across the 10 ohm resistor?
17. If three resistors of 3 ohms, 5 ohms, and 22 ohms are connected in series in a 28 volt circuit, how much current will flow through the 3 ohm resistor?

C. Skill demonstrations

...
Basic Electricity, Gen A5(a,b),
Level 3

Description: Electrical
Equipment Identification,
Operation, and Electrical
Measurement

Tools: Standard hand
tools (use correct size
“Phillips” screwdrivers),
VOM

Aircraft: **Beechcraft K35
Bonanza**

Procedure: 1. To become
familiar with the
electrical components
and equipment
layout; and to operate
the following pieces
of equipment:

- A. Landing light
- B. Stall warning actuator
- C. Navigation light
- D. Flap actuator motor
- E. Pitot assembly with pitot heat

1. Gather correct tools.
2. Gain access to the landing light, pitot heat, and one navigation light.
3. Measure and record the source (bus) voltage and the voltage at each load item. Using the “voltage drop”

	<p>method, calculate and record the resistance of the wiring from the bus to the load. Reinstall any removed equipment in an airworthy fashion.</p> <p>4. Measure and record the resistance of the pitot heater element.</p> <p>5. Calculate and record the power used by the pitot heater.</p> <p>Goals:</p> <ol style="list-style-type: none"> 1. To properly and safely operate and troubleshoot electrical equipment components. 2. To properly use a VOM. 3. To become more familiar with aircraft electrical equipment location. 		
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(Additional sheets may be attached if necessary.)

C. **EXPLANATIONS.** If course modification results in changes in the program which will require use of the program description form, please give rationale.

Please attach the complete outline before modifications to this form. If only the first page of the outline is being modified, also attach the new first page. If other pages of the outline are being modified, please attach the complete new outline.

Reedley College

SIGNATURE FORM

Submission/Recommendation/Action

Course Department and Number: Industrial Technology/AERO 1

Course Title: Aviation Maintenance Technology

Effective Date: 08/01/2010

1. Submitted By: Keith Zielke Date: 01/20/2010

2. Reviewed by Department: _____ Date: _____
Department Chair's Signature
Attach department recommendation. (optional)

3. Received/Reviewed by Dean of Instruction: _____ Date: _____
Dean's Signature

4. Approved by Curriculum Committee on: _____
Date

Curriculum Committee Chair Date

Vice President of Instruction Date

5. Reviewed by Articulation Officer: _____ Date: _____

CSU GE Code submitted for articulation: _____



CREDIT COURSE OUTLINE

I. COVER PAGE

(1)
Course ID: AERO 1

(2)
Course Title: Aviation Maintenance Technology

(3)
Units: 17.5

<p>(4) Lecture / Lab Hours:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">Total Course Hours</td> <td style="width: 20%;"></td> <td style="width: 20%;"></td> </tr> <tr> <td style="padding-left: 40px;">Total Lec hours:</td> <td style="border: 1px solid black; text-align: center;">15</td> <td></td> </tr> <tr> <td style="padding-left: 40px;">Total Lab hours:</td> <td style="border: 1px solid black; text-align: center;">15</td> <td></td> </tr> </table> <p>Lec will generate _____ hour(s) outside work Lab will generate _____ hour(s) outside work.</p>	Total Course Hours			Total Lec hours:	15		Total Lab hours:	15		<p>(8) Classification:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">Degree applicable:</td> <td style="width: 40%; text-align: center;">x</td> </tr> <tr> <td>Non-degree applicable:</td> <td></td> </tr> <tr> <td>Pre-collegiate basic skills:</td> <td></td> </tr> </table>	Degree applicable:	x	Non-degree applicable:		Pre-collegiate basic skills:	
Total Course Hours																
Total Lec hours:	15															
Total Lab hours:	15															
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<p>(5) Grading Basis:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">Grading scale only</td> <td style="width: 40%; text-align: center;">x</td> </tr> <tr> <td>Pass/No Pass option</td> <td></td> </tr> <tr> <td>Pass/No Pass only</td> <td></td> </tr> </table>	Grading scale only	x	Pass/No Pass option		Pass/No Pass only		<p>(9) RC Fulfills AS/AA degree requirement: (area)</p> <p>General education category:</p> <p style="text-align: center;">Major: _____ Aeronautics</p>									
Grading scale only	x															
Pass/No Pass option																
Pass/No Pass only																
<p>(6) Basic Skills Prerequisites:</p> <p>Basic Skills Advisories: Eligibility for English 125, English 126, and Math 101</p>	<p>(10) CSU: Baccalaureate: x</p> <p>(11) Repeatable: (A course may be repeated three times) 0</p> <p style="text-align: center; background-color: #f2f2f2;">For Office Use Only</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">New</td> <td style="width: 10%;"></td> <td style="width: 10%;">Mod</td> <td style="width: 10%; text-align: center;">x</td> <td style="width: 60%;">Effective Date: 08/01/2010</td> </tr> </table>	New		Mod	x	Effective Date: 08/01/2010										
New		Mod	x	Effective Date: 08/01/2010												
<p>(7) Subject Prerequisites (requires C grade or better):</p>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">SAM Priority: C</td> <td style="width: 40%;">DATATEL ID: 4997</td> </tr> <tr> <td>Unit Code: 272040</td> <td>TOPS Code: 0950.00</td> </tr> <tr> <td>Reporting ID: 600992.00</td> <td>Date Reporting ID Assigned</td> </tr> </table>	SAM Priority: C	DATATEL ID: 4997	Unit Code: 272040	TOPS Code: 0950.00	Reporting ID: 600992.00	Date Reporting ID Assigned									
SAM Priority: C	DATATEL ID: 4997															
Unit Code: 272040	TOPS Code: 0950.00															
Reporting ID: 600992.00	Date Reporting ID Assigned															
<p>Subject Corequisites:</p>	<p>Program Status:</p> <p>Course LHE: 26.25</p>															
<p>Subject Advisories:</p>	<p>Replaced by: Date:</p>															
<p>(12) Catalog Description:</p> <p>Aero 1 meets the FAA General requirements: Basic Electricity, Aircraft Drawings, Weight and Balance, Fluid Lines and Fittings, Materials and Processes, Ground Operation and Servicing, Cleaning and Corrosion Control, Wood Structures, Aircraft Covering, Aircraft Finishes, Math, Maintenance Forms and Records, Basic Physics, Maintenance Publications, Mechanic Privileges and Limitations, Welding, and Human Factors. Computer subjects include terminology, storage devices, word processing, and computer based- training applications. . Successful completion of Aero 1, 2, 3 and 4 qualifies student to take the licensing exams required for Airframe and Powerplant certification.</p>																

II. COURSE OUTCOMES:

(Specify the learning skills the student demonstrates through completing the course and link critical thinking skills to specific course content and objectives.)

Upon completion of this course, students will be able to:

- A. Meet Federal Aviation Administration requirements listed under “General” subjects as specified in the Approved Aviation Maintenance Technician School Agreement.
- B. Recognize and define the implication of ethical and legal maintenance standards as prescribed in the Federal Aviation Administration, Federal Aviation Regulations.
- C. Complete assigned inspections, modifications, repairs, calculations, and/or troubleshooting procedures, while determining if provided documentation is valid.
- D. Develop acceptable documentation for return to service certification of aircraft and/or related component parts.
- E. Work successfully in a team atmosphere, alternately assuming the roles of leader and of team player.
- F. Apply safety procedures in a shop environment and follow hazardous material handling procedures.
- G. Demonstrate familiarity with the general operating procedures of a personal computer and its standard peripheral devices.

III. COURSE OBJECTIVES:

(Specify major objectives in terms of the observable knowledge and/or skills to be attained.)

In the process of completing this course, students will:

1. Determine the relationship of voltage, current, and resistance in electrical circuits (Level 3)
2. Calculate and measure electrical power (Level 2)
3. Measure voltage, current, resistance, and continuity (Level 3)
4. Read and interpret electrical circuit diagrams (Level 3)
5. Inspect and service batteries (Level 3)
6. Calculate and measure capacitance and inductance (Level 2)
7. Use drawing symbols and schematic diagrams (Level 2)
8. Draw sketches of repairs and alterations (Level 3)
9. Use blueprint information (Level 3)
10. Use graphs and charts (Level 3)
11. Weigh aircraft (Level 2)
12. Perform complete weight and balance checks and properly record data (Level 3)
13. Fabricate and install rigid and flexible fluid lines and fittings. (Level 3)
14. Identify and select aircraft hardware and materials (Level 3)
15. Identify and select appropriate nondestructive testing methods
16. Perform penetrant, chemical etching, and magnetic particle inspections (Level 2)
17. Perform precision measurements (Level 3)
18. Inspect and check welds (Level 3)
19. Start, ground operate, move, service, and secure aircraft and identify typical ground operation hazards (Level 2)
20. Identify and select aircraft fuels (Level 2)
21. Identify and select appropriate cleaning materials (Level 3)
22. Inspect, identify, remove, treat aircraft corrosion and perform aircraft cleaning (Level 3)
23. Service and repair wood structures (Level 1)
24. Identify wood defects (Level 1)
25. Inspect wood structures (Level 1)
26. Inspect, test, and repair fabric (Level 1)
27. Select and apply fabric and fiberglass covering materials (Level 1)
28. Apply trim, letters, and touch-up paint (Level 1)
29. Identify and select aircraft finishing materials (Level 2)
30. Apply finishing materials (Level 2)
31. Inspect finishes and identify defects (Level 2)
32. Determine areas and volumes of various geometrical shapes (Level 3)
33. Solve ratio, proportion and percentage problems (Level 3)
34. Perform algebraic operations involving addition, subtraction, multiplication and division of positive and negative numbers (Level 3)

35. Extract roots and raise numbers to a given power (Level 3)
36. Demonstrate ability to read, comprehend and apply information contained in FAA and manufacturers aircraft maintenance specifications, data sheets, manuals and publications, related Federal Aviation Regulations, airworthiness directives, and advisory material (Level 3)
37. Read, understand, and relate technical information (Level 3)
38. Write descriptions of aircraft condition and work performed including aircraft discrepancies and corrective actions using typical aircraft maintenance records (Level 3)
39. Complete required maintenance forms, records, and inspection reports (Level 3)
40. Exercise mechanic privileges with the limitations prescribed by Part 65 of the Federal Aviation Regulations. (Level 3)
41. Use and understand the principles of simple machines; sound, fluid, dynamics, basic aerodynamics, aircraft structures and theory of flight (Level 2)
42. Weld magnesium and titanium (Level 1)
43. Solder stainless steel (Level 1)
44. Solder, braze, gas-weld, and arc-weld steel (Level 2)
45. Weld aluminum and stainless steel (Level 1)
46. Fabricate tubular structures (Level 1)
47. Understand the role human factors plays in aviation maintenance safety (Level 1)
48. Operate a windows-based computer for CBT training (Level 2)
49. Activate a personal computer and load/save Lab Volt data files and ATP (Aircraft Technical Publishers) type certificate data files.
50. Access and use TDATA software to research and record aircraft airworthiness directives for aircraft.
51. Access the internet at FAA.GOV and other sources to research aircraft airworthiness directives and to look up other pertinent aircraft information.
52. Use email messaging to request information from aircraft and aircraft parts vendors for product information.

*Skill Levels (Federal Aviation Administration Format):

1. Knowledge/Skill Level 1 C requires comprehension of general principle, but no manipulative skill application.
2. Knowledge/Skill Level 2 C requires comprehension of general principles, limited practical application and development of limited manipulative skills to perform basic operations.
3. Knowledge/Skill Level 3 C requires comprehension of general principles, performance of practical application and development of manipulative skills to minimum airworthiness standards.

IV. COURSE CONTENT OUTLINE:**Lecture:**

- A. Basic Electricity
- B. Aircraft Drawings
- C. Weight and Balance
- D. Fluid, Lines, and Fittings
- E. Materials and Processes
- F. Ground Operation and Servicing
- G. Cleaning and Corrosion Control
- H. Wood Structures
- I. Aircraft Covering
- J. Aircraft Finishes
- K. Math
- L. Maintenance forms and Records
- M. Basic Physics
- N. Maintenance Publications
- O. Mechanic Privileges and Limitations
- P. Welding
- Q. Computer Essentials
- R. Human Factors

Lab will give students the opportunity to apply concepts to practical applications

- A. Basic Electricity
- B. Aircraft Drawings
- C. Weight and Balance
- D. Fluid, Lines, and Fittings
- E. Materials and Processes
- F. Ground Operation and Servicing
- G. Cleaning and Corrosion Control
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- L. Maintenance forms and Records
- M. Basic Physics
- N. Maintenance Publications
- O. Mechanic Privileges and Limitations
- P. Welding
- Q. Computer Essentials
- R. Human Factors

Note: The Aero program courses are regulated by the Federal Aviation Administration to include approximately 50% lecture and 50% lab in all of the subjects.

V. APPROPRIATE READINGS

Reading assignments may include but are not limited to the following:

- A. Federal Aviation Regulations, Aviation Maintenance Technician, Jeppesen, 2010, ISBN# 0-88487-337-4
- B. Airframe and Powerplant Technician General Text Book, Jeppesen, 2009, or equivalent
- C. Airframe and Powerplant Technician Airframe Textbook, Jeppesen, 2009, or equivalent
- D. Airframe and Powerplant Technician Powerplant Textbook, Jeppesen, 2009, or equivalent
- E. Aircraft Inspection and Repair (AC-43.13-1B & 2B,) FAA, supplied by Jeppesen, 2008, or equivalent
- F. Dictionary of Aeronautical Terms, Crane, 2008, or equivalent
- G. Aviation Mechanic Handbook, Crane, 2006, or equivalent
- H. Aircraft Gas Turbine Powerplants, Jeppesen, 2002, or equivalent
- I. Computer-Based-Training hardware and software
- J. Aircraft and aircraft mock-up components
- K. Microfiche Library, ATP, 2008
- L. CD library, various
- M. Hard-copy Service Manuals, Maintenance Manuals, Parts Manuals; various

	Global or international materials or concepts are appropriately included in this course
	Multicultural materials and concepts are appropriately included in this course.

If either line is checked, write a paragraph indicating specifically how global/international and/or multicultural materials and concepts relate to content outline and/or readings.

VI. METHODS TO MEASURE STUDENT ACHIEVEMENT AND DETERMINE GRADES:

Students in this course will be graded in at least one of the following four categories. Please check those appropriate. A degree applicable course must have a minimum of one response in category A, B or C.

A. Writing			
<i>Check either 1 or 2 below</i>			
x	1. Substantial writing assignments are required. Check the appropriate boxes below and provide a written description in the space provided.		
	2. Substantial writing assignments are NOT required. If this box is checked leave this section blank. For degree applicable courses you must complete category B and/or C.		
	a. essay exam(s)		d. written homework
	b. term or other papers(s)		e. reading reports
x	c. laboratory reports		f. other (specify)

Required assignments may include but are not limited to the following:

Discrepancy reports

Laboratory reports

Log Book entries

Sample Student Prompt;

Complete aircraft discrepancy reports and maintenance forms and records.

B. Problem Solving			
1. Computational or non-computational problem-solving demonstrations, including:			
x	a. exam(s)	x	d. laboratory reports
x	b. quizzes		e. field work
x	c. homework problems		f. other (specify)

Required assignments may include, but are not limited to the following:

Quizzes

Lab reports

Lab projects

Sample Student Prompt;

Trouble shoot failure in electrical system

List procedures required to repair given component to operating condition

C. Skill demonstrations, including:			
x	a. class performance(s)	x	c. performance exam(s)
	b. field work	x	d. other (specify)

Required assignments may include, but are not limited to the following:

Lab project

Research project

Exam

Sample Student Prompt;

Weight aircraft and compute new empty weight and center of gravity

D. Objective examinations, including:			
x	a. multiple choice	x	d. completion
x	b. true/false	x	e. other (specify)
x	c. matching items		

COURSE GRADE DETERMINATION:

Description/Explanation: Based on the categories checked in A-D, it is the recommendation of the department that the instructor's grading methods fall within the following departmental guidelines; however, the final method of grading is still at the discretion of the individual instructor. The instructor's syllabus must reflect the criteria by which the student's grade has been determined. (A minimum of five (5) grades must be recorded on the final roster.)

If several methods to measure student achievement are used, indicate here the approximate weight or percentage each has in determining student final grades.

40% Objective Examination

10% Written Classroom Assignments

50% Lab Applications

FOR DEGREE APPLICABLE COURSES

Course ID: AERO 1

Course Title: Aviation Maintenance Technology

VII. EDUCATIONAL MATERIALS

For degree applicable courses, the adopted texts, as listed in the college bookstore, or instructor-prepared materials have been certified to contain college-level materials.

Validation Language Level (check where applicable):	College-Level Criteria Met	
	Yes	No
Textbook	x	
Reference materials	x	
Instructor-prepared materials	x	
Audio-visual materials	x	

Indicate method of evaluation:

Used readability formulae (grade level 10 or higher)	
Text is used in a college-level course	x
Used grading provided by publisher	
Other: (please explain; relate to Skills Levels)	

Computation Level (Eligible for MATH 101 level or higher where applicable)	x	
Content		
Breadth of ideas covered clearly meets college-level learning objectives of this course	x	
Presentation of content and/or exercises/projects:		
Requires a variety of problem-solving strategies including inductive and deductive reasoning.	x	
Requires independent thought and study	x	
Applies transferring knowledge and skills appropriately and efficiently to new situations or problems.	x	
List of Reading/Educational Materials		
A. Federal Aviation Regulations, Aviation Maintenance Technician, Jeppesen, 2010, ISBN# 0-88487-337-4		
B. Airframe and Powerplant Technician General Text Book, Jeppesen, 2009, or equivalent		
C. Airframe and Powerplant Technician Airframe Textbook, Jeppesen, 2009, or equivalent		
D. Airframe and Powerplant Technician Powerplant Textbook, Jeppesen, 2009, or equivalent		
E. Aircraft Inspection and Repair (AC-43.13-1B & 2B,) FAA, supplied by Jeppesen, 2008, or equivalent		
F. Dictionary of Aeronautical Terms, Crane, 2008, or equivalent		
G. Aviation Mechanic Handbook, Crane, 2006, or equivalent		
H. Aircraft Gas Turbine Powerplants, Jeppesen, 2002, or equivalent		
I. Computer-Based-Training hardware and software		
J. Aircraft and aircraft mock-up components		
K. Microfiche Library, ATP, 2008		
L. CD library, various		
M. Hard-copy Service Manuals, Maintenance Manuals, Parts Manuals; various		
Comments:		
	This course requires special or additional library materials (list attached).	
x	This course requires special facilities: Aero Lab	

TARGET COURSE AERO 1 Aviation Maintenance Technology

Number

Title

BASIC SKILLS ADVISORIES PAGE The skills listed are those needed for eligibility for English 125, 126, and Math 101. These skills are listed as the outcomes from English 252, 262, and Math 250. In the right hand column, list at least three major basic skills needed at the beginning of the target course and check off the corresponding basic skills listed at the left.

<p>Math Skills (eligibility for Math 101) (as outcomes for Math 250)</p> <p><input checked="" type="checkbox"/> Performing the four arithmetic operations on whole numbers, arithmetic fractions, and decimal fractions.</p> <p><input checked="" type="checkbox"/> Making the conversions from arithmetic fractions to decimal fractions, from decimal fractions to percents, and then reversing the process.</p> <p><input type="checkbox"/> Applying the concepts listed above to proportions, percents, simple interest, markup and discount.</p> <p><input checked="" type="checkbox"/> Applying the operations of integers in solving simple equations.</p> <p><input type="checkbox"/> Converting between the metric and English measurement systems</p>	<ol style="list-style-type: none"> 1. Perform the four arithmetic operations on whole numbers and fractions. 2. Convert fractions to decimals 3. Perform mathematical calculations
<p><u>Reading Skills</u> (eligibility for English 126) (as outcomes for English 262)</p> <p><input checked="" type="checkbox"/> Using phonetic, structural, contextual, and dictionary skills to attack and understand words.</p> <p><input type="checkbox"/> Applying word analysis skills to reading in context.</p> <p><input checked="" type="checkbox"/> Using adequate basic functional vocabulary skills.</p> <p><input checked="" type="checkbox"/> Using textbook study skills and outlining skills.</p> <p><input type="checkbox"/> Using a full range of literal comprehension skills and basic analytical skills such as predicting, inferring, concluding, and evaluating.</p>	<ol style="list-style-type: none"> 1. Read college level textbooks. 2. Fulfill Federal Aviation Requirement to read, write, and speak the English language 3. Read lab job sheets
<p><u>Writing Skills</u> (eligibility for English 125) (as outcomes for English 252)</p> <p><input checked="" type="checkbox"/> Writing complete English sentences and avoiding errors most of the time.</p> <p><input checked="" type="checkbox"/> Using the conventions of English writing: capitalization, punctuation, spelling, etc.</p> <p><input checked="" type="checkbox"/> Using verbs correctly in present, past, future, and present perfect tenses, and using the correct forms of common irregular verbs.</p> <p><input type="checkbox"/> Expanding and developing basic sentence structure with appropriate modification.</p> <p><input type="checkbox"/> Combining sentences using coordination, subordination, and phrases.</p> <p><input type="checkbox"/> Expressing the writer's ideas in short personal papers utilizing the writing process in their development.</p>	<ol style="list-style-type: none"> 1. Complete aircraft discrepancy reports and maintenance forms and records. 2. Federal Aviation Requirement to read, write, and speak the English language. 3. Write discrepancy reports and maintenance records

Check the appropriate spaces.

Eligibility for Math 101 is **advisory** for the target course.

Eligibility for English 126 is **advisory** for the target course.

Eligibility for English 125 is **advisory** for the target course.

If the reviewers determine that an advisory or advisories in Basic Skills are all that are necessary for success in the target course, stop here, provide the required signatures, and forward this form to the department chair, the appropriate associate dean, and the curriculum committee.

Content review completed by _____ Date _____